

The

October 2002

# Ballarat Naturalist



## Stella Bedggood Memorial Lecture

### *Platypus Research and Conservation*

**Speaker: Geoff Williams, Australian Platypus Conservancy**

When a specimen of this monotreme (egg-laying mammal) was sent to England in the 1790s, it was thought to be a hoax! Such was the uniqueness of this creature that no-one could conceive of such an apparent mixture of physiology.

Its bill is not hard - rather it is leathery and flexible and can be said to be the platypus's sixth sense. Because it is largely nocturnal, its eyes and ears are less useful, and the bill becomes an electro-receptor, detecting minute electrical currents given off by creatures such as bugs and yabbies which are its food.

It lays 1-3 eggs which are soft and leathery, and measure 1½ cm across. There is no pouch; instead the platypus bends its tail up, holding the young against its lower belly from which milk, rich in fats and iron, oozes. In 3 months the youngster will reach 50% of its adult size.

Males have venomous spurs on the inside of the hind ankle; research has discovered 4 pain-causing agents new to science. Humans react with severe and prolonged swelling of the affected area with agonising pain. Platypuses use the spurs when fighting to establish or defend territory in the breeding season. Males mate with 2-3 females.

Are platypuses a missing link between reptiles and mammals? Their skeleton has extra bones around the shoulders like reptiles; it is thought their ancestry can be traced back 110 million years ago.



How are their bodies adapted to their lifestyle? They are naturally buoyant but can submerge for up to 14 minutes, reducing their heart rate from around 200 beats per minute to as low as 6. Because they generally inhabit cold water, their fur consists of two layers: a dense under-layer with longer hairs above which trap air. Their fur is one of the densest known: 600-900 hairs per mm<sup>2</sup>, denser than a polar bear's pelt. Body temperature is maintained at 32°C.

However platypuses are really land animals which choose to feed and live in water. Their front feet are webbed and used for propulsion, and have claws which can climb and dig. A tunnel 1m in length can be excavated in 2 hours.



They are mostly found along the eastern side of Australia except for Far North Queensland and the dry north west of Victoria. Their habitat includes big rivers, suburban creeks, billabongs, man-made lakes and reservoirs and farm dams, in areas no more than 5 m deep. So they don't necessarily need pristine wild habitats and are in fact quite adaptable. They spend 99% of their time in the water or underground so evidence of their presence is not easily found - scats end up in the water, they eat underwater and leave few tracks.

What of their population status? The Australian Platypus Conservancy was established in 1994 with this objective in mind. Research techniques include trapping surveys using nets consisting of hoops and funnels. Set at 1 km intervals along a waterway, and monitored at intervals of 1½ hours, 5-10 km of creek can be checked in a night. .

These methods have determined that males have territories about 3 km long, while females defend 1km. How do you catch a potentially venomous platypus? By the tail! Then put it in a calico bag. Sex is determined by the presence or absence of spurs, which can also give an indication of age. Juvenile spurs are pale due to a chalky substance on the surface which gradually disappears over time. After 3 years it's a matter of guesswork. In females, tiny residual spurs are seen at birth but disappear within 5-10 months, and once they've gone there's no other indication.

Males live for 8-10 years, females for 10-12 years. Researchers check the condition of trapped individuals by looking at the tail where 50% of the creature's fat is stored. By squeezing the tail (trying to make the sides meet) condition is recorded on a scale of 1-5. 1-2: tail cannot be bent due to large amount of fat; 3: bendy but can't touch the sides together; 4: sides can be folded together; 5: bone can be easily felt indicating starvation.



Platypuses even have their own species of tick. Mostly these live on the inside of the ankles where the animal can't groom itself (grooming is done with the back feet which are used like a comb). It is not known how or whether they affect the platypus. Possibly they might cause a blood disease. Perhaps when tick numbers build up (they are passed between individuals in the burrows) disease is caused and thus population numbers are controlled.

Meaningful research demands that the same animals be caught and checked but how do you identify individuals? Initial methods included comparing bill patterns but it quickly became apparent that many bills were all black, so now microchips are glued to the top layer of fur, enabling radio tracking to be carried out.

What problems do platypuses have to contend with as they share their environment with humans? Rubbish is perhaps one of the worst difficulties, with plastic or metal rings becoming stuck around their necks, and fishing line becoming embedded in their skin. Fishing nets, often illegally used, can trap them: 17 skulls were found in one net left, presumably lost and forgotten, in a waterway. Fences placed across rivers to mark farm boundaries cause head injuries. Pollution such as sump oil is an obvious hazard.

Degradation of waterways by erosion and vegetation removal leads to bank collapse and increased sedimentation, with a resulting loss of food. Platypuses eat 30% of their body weight - ½ kilo - each night. The presence of willows and other non-native vegetation deters platypuses because their food sources themselves need native vegetation to eat. Predation by foxes, dogs and cats is a problem which has only developed since European settlement; there would have been few natural predators prior to this time.

Such considerations must be borne in mind when planning walking tracks; a buffer zone should be left to protect river banks so that plenty of roots and vegetation keep the banks stable; some undercutting helps access but makes the creatures difficult to find! This is where radio-tracking is so useful. Many burrows are used by individual animals, and they are dug at different levels to cater for fluctuations in water levels. Fewer ticks accumulate if the platypus moves around.



Rehabilitation, involving the fencing off of stock and replanting with native trees has had rapid results: on the Hopkins River two years after fencing, the difference is already noticeable, with 4 animals in the rehabilitated zone and none in the unprotected area.



The water's flow has often needed to be modified: where straightening of the channel and removal of snags led to faster flows and erosion, the creation of artificial pools and riffles has enabled bugs to re-colonise the various habitats of the river bed and thus encourage the platypuses to return. The Yarra was dredged in the 1940s and after channel rehabilitation, this year the platypuses are back.

Platypuses reproduce readily, and if habitat is available they'll move into it, so the more we rehabilitate the environment, the further they will spread.

How can the community help? By reporting platypus sightings. Research is labour intensive and time-consuming, so reporting by the public is very valuable. Sightings give an indication of the health of the catchment in which they occur. Look for ripples with strong concentric rings, a body very low in the water, often with a double hump, and a strong bow wave; the platypus leaves a long wake.

Geoff illustrated his talk with slides depicting all of his themes and thus gave us an intimate look at a creature few of us would have seen close up. His enthusiasm for his topic was infectious and a responsive audience made for an enjoyable and friendly evening, many folk staying for supper afterwards.

Editor.

## **Excursion: Paddy Ranges**

**Leaders: Lyle and Eileen Courtney**

The effects of the dry weather were apparent as we neared Maryborough for our September excursion to Paddy's Ranges State Park. There was almost no green undergrowth among the ironbark, box and red stringybark trees. Our excursion leaders, Lyle and Eileen Courtney of the Maryborough Field Naturalists' Club welcomed us. They said that the dry weather had affected the growth and flowering of shrubs and orchids when compared to wetter years.

We set out along the Settling Ponds track to have a look at an area the Maryborough Club had fenced off about fifty years ago. Along the way a yellow leopard orchid *Diuris pardina* and Blue Caladenia, *C. caerulea* were seen in flower. Also flowering were White *Marianthus Rhytidosorum* sp. and the red and yellow flowered Bushy Parrot-pea, *Dillwynia ramosissima*. Soon after the Maryborough club was formed some fifty years ago, they fenced off an area of one acre with a rabbit-proof fence to keep out rabbits and hares. This fence also keeps out wallabies. Some of the fence posts were scorched during the January 1985 bushfire.



The difference in the amount of undergrowth between inside of the fenced off area and outside was very noticeable. Outside there was practically no understorey. The shrubs had been eaten to the ground by wallabies. Even Bitter-pea plants had been eaten. Inside the fence the Fairy Wax-flower *Philotheca verrucosus*, the Bushy Parrot-pea, Grey Everlastings *Ozothamnus obcordatus*, the Twining Fringe-lily *Thysanotus patersonii* and *Pimeleas* were growing well, safe from grazing animals. Lyle suggested that a cull of excess wallabies would help the orchids and shrubs outside the fenced area. No doubt this idea is unpalatable to some.

We made our way back to our vehicles by a different route. Dwarf Greenhood Orchids *Pterostylus nana* were found growing in a damper spot in a valley bottom. On a rocky ridge was a large area of Slender Mint-bush *Prostanthera saxicola* var. *bracteolata* plants with most of their leaves eaten. These Mint-bushes have pale blue flowers in November-December. Tall Greenhood orchids *Pterostylus melagramma* that were nearly finished flowering were seen by some. A few flowers were seen on the dry Holly-leaved Grevillea and the *Grevillea alpina*. The *Grevillea alpina* plants in a small area can have a range of flower colours.

We had our lunch at the picnic ground. The Maryborough Club had erected an information board here. Yellow-tufted Honey-eaters were seen feeding in the Ironbark trees *Eucalyptus tricarpa* that had a few flowers. After lunch we continued along Settling Ponds track. The windy track passed through more Box-Ironbark forest with some healthier-looking Golden Wattle *A. pycnantha* and Yellow Gums *E. leucoxylon*.

Red Ironbark *E. tricarpa*



At the end of this track we turned into Blacksmith Gully road, then through Amherst to Talbot. West of Talbot we took the Nuggety Gully track to the site of the former Stoney Creek school. On the way Greg Binns said he heard the call of the Olive-backed Oriole. The Stoney Creek school existed from about 1860 until 1912. The school site is surrounded by a post and rail fence. A lady teacher at the school was fond of gardening. There are the remains of a rockery and garden beds set out in a geometrical pattern. A map of Australia remains with the states outlined in stones on the ground. Male and female flowers of Early Nancies *Wurmbea dioica* were seen. Also seen here were the white flowers of an albino variant of the Dwarf Greenhood orchid.

Other orchids seen were the Helmet Orchid *Corybas* sp., Nodding Greenhoods *Pterostylus nutans* and Pink Fingers *Caladenia carnea*. An area of Lowly Green-



hood Orchids *Pterostylus despectans* had been uprooted possibly by foraging Choughs. This proved to be a good site for orchids. We certainly saw more plants and orchids in flower than we expected to when we started out earlier that day.

Les Hanrahan.

**Extract from *Fifty Golden Years* published in 2001 by Maryborough Field Naturalists' Club:**

1955: Member Lyle Courtney responded to a call from radio naturalist Crosbie Morrison for volunteers to supply Red-back Spiders to the Commonwealth Serum Laboratories by sending 45 specimens. After he had supplied 600 spiders, as a gesture of appreciation the CSL presented the first tube of Red-back antivenene released to the Maryborough Hospital, and asked Lyle if he would be willing to supply all the spiders they required for anti-venom production and research - on a hobby basis. Some fifty thousand spiders later, in 1998 Lyle reluctantly relinquished his commitment. On Australia Day 2001, he was the recipient of an OAM for his effort.



## September Meeting Points

The President, Carol Hall, welcomed 70 people including visitors from Melbourne, Geelong and Maryborough and members of the Bedggood family. Apologies were received from Catherine King MHR, Dianne Haddon MLC, Geoff Howard MLA, Karen Overington MLA, Joe Helper MLA, David Vendy, Mayor of Ballarat, Margaret Smerdon, Frank Harrap, Jack and Marie Netherway, Irene Hooper, Edna, Peter and Edith Fry, Margaret Rotheram.

The Guest Lecturer was Geoff Williams, Director of Australian Platypus Conservancy, who spoke on "Platypus Research and Conservation". He outlined the unique features of platypus and said that the greatest threat to the platypus was degradation of their streamside habitat.

Mr Williams was thanked by Greg Binns and presented with a gift.

The evening concluded with supper.



## Mt. Helen - Bird-attracting plants/trees : a 26-year study.



When we moved in on the 0.3 ha block there were several native trees, including a Tasmanian Blue Gum (now probably >30 years old and about 25 m high) and a *Grevillea robusta*, planted about 3 m from the Blue Gum, which has once managed a few flowers. Native shrubs—one *Banksia* sp., planted over the outlet from the septic tank. Exotics included 4 spindly oaks, several Silver Birches (2 remain) Mountain Ash, 2 nondescript *Prunus* sp., a Sycamore and a Willow! Other than the Silver Birches, only a *Cotoneaster* remains (flowers and fruits cleared annually by Crimson Rosellas.)

**Native "failures":** (our block slopes west to east and rarely sees frost)

**Grevilleas** - Robyn Gordon, Superb and Ned Kelly, Moonlight (probably through frost, all died or were non-achievers), Crosbie Morrison, *G. juniperina*, Dargan Hill; not visited: Poorinda Pearl, P. Rondeau, *sericea*, Ivanhoe (now flowering prolifically and full size—4m x 4m), *dimorpha* (fine leaf form) smothered as always with flowers.

**Hakeas:** *H. invaginata*, *nodosa*, *sericea*, *salicifolia*, *verrucosa*, (very attractive deep pink flowers, winter) - not visited.

**Eremophila:** several grafted ones, not visited.

**Melaleuca:** *M. decussata*, *fulgens*, *linariifolia*, *thymifolia*, *wilsonii*—not visited.

Big mistakes, in every sense - *Darwinia citriodora*, pleasant aromatic foliage. Small nondescript flowers—never visited—I dug it out just recently. Terrible job as all the branches were intertwined; *Grevillea rivularis*—too vigorous—one shrub is 6m wide and 4m high.

**Native successes:** ratings: \*good, \*\*very good, \*\*\*excellent.

**Grevilleas:** *G. barklyana*\*\*\*—likes shade, v. attractive foliage, fast growing even on clay. Poorinda Constance\*\*\* - on clay, a flop on better soil. *G. Hookeriana*\*\* ; *G. lanigera*\*—both forms ; *G. diminuta*\*\*\*—mine flowers in the winter!



Poorinda Peter-front of the block\*\*\*, in the back and less sun—not visited! *G. rosmarinifolia* red\*\*\* but grew to 6m across with many blackberries under. *G. victoriae*\*\*\*\* visited by thornbills as well as by honeyeaters—quite the best. Big Red\*\*\*—vigorous; Pryor's Hybrid\*\*\*—especially as the branches are thin and do not support a Red Wattle Bird— a garden pest. ( Is this fair? Ed)



*Epacris longiflora*\*, *Eremophila decipiens*\*\*\*, *Hakea laurina*\*\* - very attractive; *H. macrama*\*\*.

**Under trial:** *Isopogon formosa*, *Dryandra formosa*, *Grevillea Greyfriars Jubilee*—very attractive, vigorous, large crimson flower. Have not found any acacias or banksias with great bird appeal—I don't count Red Wattle Bird.

## Mount Helen - Birds of interest - August 2002

**August 1st:** I went out before breakfast to collect the paper and saw 2 Wood Ducks standing on the top of a bird box. Watching them and moving about rather restlessly was a pair of Crimson Rosellas. I don't want to anthropomorphise, but the Rosellas did look "crestfallen" as if they had missed out on a desirable residence. They moved off, with the Ducks following soon after.

**August 8th:** Again collecting the paper, I saw a Peregrine Falcon moving rapidly over the trees, heading south. Later in the day, at the Mt. Helen post box (opposite IBM), an immature female Peregrine Falcon flew north directly over the top of me and at a height of about 20 m. Starlings on the power lines (four positioned vertically) did not make a move. Today is the anniversary of our arrival in Mt. Helen in 1976, so this was a welcome sighting for the day.

**Mid August:** In the previous 26 years I had had only 2 to 3 sightings of Silvereyes on the block. This August, we had them in for 6 days running. At the same time there was a lot of movement of Brown and Striated Thornbills, New Holland Honeyeaters and Eastern Spinebills. *Grevillea johnsonii* (at least 15 years old—never before visited) was particularly favoured by the Silvereyes and thornbills.

Frank Harrap.



Eastern Spinebill



## From the Media

*The Courier* 14/6/02 under the heading **75 years ago:**

The water level of Lake Learmonth has not been this low since 1914. Residents could only remember two years - 1902 and 1903 - when the lake was dry. In those years vehicles were able to drive across the exposed bed of the lake.

*The Australian* 8/6/02

The glacier from which Sir Edmund Hillary and Tenzing Norgay began their ascent of Mt. Everest in 1953 had retreated by about 5 km because of global warming.....The Khumbu glacier had melted so much that it would take the mountaineers more than two hours to trek to the ice.....Other ice fields in the region have also shrunk dramatically in the same period as average temperatures have risen, creating swollen lakes that threaten to cause flash floods in the valleys below.

*The Australian* 20/7/02

Alaska's glaciers are melting, sending enough water into the oceans to lift global sea levels by 0.28mm a year....That is twice the rate of seven years ago and 14 times that estimated 40 years ago. Most glaciers have thinned over their lengths.... rapid glacier wastage "may be" linked to climate warming over several decades but there were other factors, such as the unstable dynamics of their advance and the changing characteristics of surge-type glaciers.

At the other end of the earth, scientists have discovered the sea is becoming less salty as it also gets diluted.....the Ross Sea in Antarctica over the last 40 years is "dramatically" less salty and the water and air are warmer.

*The Australian* 18/5/02

The SW of Western Australia, already enduring a 27-year dry period, is facing worsening conditions...Two climate changes had affected the area. The first, in the 1950s, was a reduction in moisture-laden air flowing from the Indian Ocean over the SW. The second change, in the mid 1970s, was an increased frequency of high pressure systems. These systems were more frequently centred on the SW corner and a little bit to the east....."that means we tend to get dry air being dragged in from the interior of Australia to SW Western Australia."

Researchers....started out with a view that "what we were experiencing here was due solely to the Indian Ocean, but what we are finding is quite a strong El Nino fingerprint here....it is more intense, more frequent and longer lasting than it used to be."

*Maryborough FNC Newsletter* Vol.50 No.2

Did you know that the River Red Gum, *E. camaldulensis*, was first described from a specimen growing in the gardens of the Camalduli religious order in Italy? Hence the name *camaldulensis*.



## **Mid-month Excursion: Ballarat Common**

The Ballarat City Council invited public comment as to the future of surplus vacant land at Ballarat Airport, Ballarat Common and surrounding Crown land. After accepting submissions, the council will adopt a position on this land and send it to the State Government. The meeting was to be held on the evening of September 24th. On that day, five members of the club, including the president and secretary, drove around inspecting the various sections. Carol Hall and John Gregurke attended the meeting.

Land immediately to the east and south of the airport is part of the Common and is currently used for grazing and agistment. The overwhelming mood of the meeting was to preserve this as a buffer zone, with concerns about noise, pollution, traffic, smell and future industrial development and airport expansion

We inspected the area where the Ballarat-Skipton Rail Trail begins, north of Blind Creek Road, which is also part of the Common. Along the trail there were good areas of Kangaroo Grass, Swamp Gum and Black Wattle whilst the paddocks adjoining were dry and dead through grazing, and possibly having been sprayed.

A visit to Winter Swamp on the southern boundary of the area under discussion revealed a pair of swans, the sounds of 3-4 species of frogs and a flock of White-faced Herons flying in the distance. There were no small birds in the thickets along the causeway. After last week's rain there was some water in the depressions but the Swamp has been dry in recent years after lower than average rainfall. This is a permanent wildlife reserve.

However at the meeting, in a response to a question from Tim D'Ombrian as to who is responsible for the maintenance of the Swamp, there were some red faces on council representatives who didn't know! It would appear to be in Parks Victoria's province but does Parks Victoria know this? The anomaly arises from a previous administrative division splitting the Swamp in half between two different zonings. Tim explained that tree planting is to be carried out to provide a link between Lake Wendouree, Flaxmill Swamp and Winter Swamp.

The other main area of interest is the unfinished wetland developed to the north of the freeway and east of the Miner's Rest road and which is part of the Burrumbeet Creek catchment. This is designed to treat stormwater runoff from the Wendouree industrial estate and was initiated as part of the freeway development. Due to lack of funding for the ecological aspects of wetland development little re-vegetation has occurred and waterlogging occurs around it. There is little bird life due to lack of diverse habits both on and around the water and earthworks, much of which are bare or covered in weeds. (This lack of funding for the continuing ecological work on new wetlands delayed planting in the North Gardens Wetland development).

Editor.



## Paul's Drain: Retarding Basin and Wetland

Your intrepid president and secretary attended another public meeting the next night, September 25th at the Badminton Stadium in Dowling St, Wendouree. This was called to present the public with plans for a retarding basin and wetland to be developed on a block 375m x 90m on the east side of Dowling St.

Increasing urbanisation includes large areas of impervious surfaces such as roofs, roads and carparks, resulting in growing quantities of runoff which also may contain gross pollutants such as litter, suspended sediment and nutrients such as nitrogen and phosphorus which promote the growth of algal blooms. Heavy metals and oil can be a problem, too. As a result Burrumbeet Creek, and downstream, Lake Burrumbeet suffer heavy pollution.

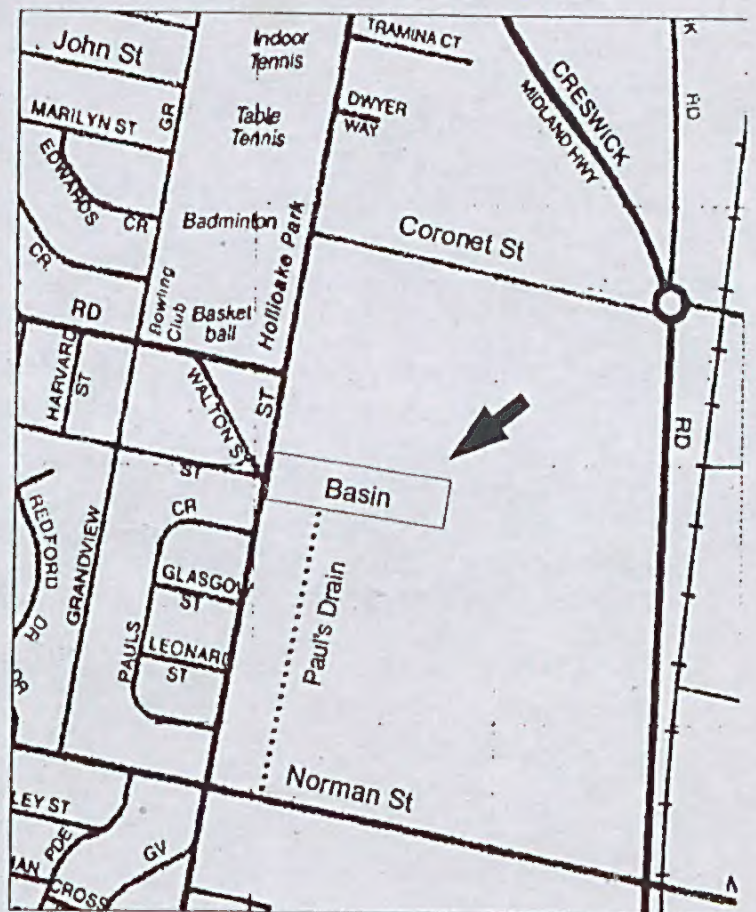
A litter trap is already in place in Paul's Drain beneath Norman St. opposite the Netball Stadium, and the new proposal seeks to address the remaining concerns.

Runoff from the Howitt St. area and from as far as Wendouree Village collects in the low-lying parts of Wendouree. John can remember paddling his canoe around the block (John St) after heavy rains in the 1980s. The retarding basin aims to hold and slow down the movement, while the wetland with its varying water depths and variety of vegetation will filter pollutants and provide habitat for waterbirds. Latham's Snipe is known to frequent existing marshy areas nearby. Excess flow will be diverted through new drains. Such flow will therefore be slower and lower in volume than previously, reducing the risk of erosion.

Paths will be laid around the perimeter of the basin to provide for passive recreation. The meeting expressed concern over possible mosquito breeding but it was pointed out that the basin's design addresses that problem by having no depressions where stagnant water could collect.

Earthworks should begin before Christmas and be finished by April 2003, followed by re-vegetation over the next year. \$460,000 has been set aside for the work, comprising contributions from the EPA, Glenelg-Hopkins Catchment Management Authority and the City of Ballarat.

Editor.





## Calendar

### October

- Fri. 4 Meeting: *Sourcing the Seed* with Christine Eales.  
Sun. 6 Excursion: *Ted Errey Nature Walk*, Brisbane Ranges. Leader Carol Hall  
Tues. 22 Committee Meeting @ John Gregurke's, 7.30 pm.  
Fri. 25 4 pm onwards Registrations for Camp-out.  
7.30 pm Welcome, Orientation and Introductory Slide Show.  
9.30 pm Supper **Members please bring a plate.**  
Sat. 26 8.30-9 am Excursions as per schedule.  
6.30 pm for 7 pm Anniversary Dinner at Webbcona Bowls Club.  
Sun. 27 8.30-9 am Excursions as per schedule.  
Noon: Box Lunch & Farewell at Ballarat Horticultural Centre .  
**November (no general meeting)**  
Sun. 10 Excursion: *Wetlands* with Tim D'Ombra

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**Supper Duty:** Nov: No meeting. Dec: Joan and Kenneth Riddell.

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### Committee

President ..... Mrs. Carol Hall  
Vice-President ..... Mr. Greg Binns  
Secretary ..... Mr. John Gregurke  
Treasurer ..... Mr. Bob Curtain

Miss Helen Burgess.....  
Miss Maureen Christie.....  
Mrs. Claire Dalman.....  
Mrs. Carol Hall (Editor).....

Mr. Les Hanrahan.....  
Mr. John Mildren.....  
Mrs. Kay Preston.....

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**Meetings** are held at the Ballarat Horticultural Centre, cnr. Gregory & Gillies Sts (VicRoads 254 F8) on the first Friday of the month at 7.30pm.

**Excursions:** Depart from Creswick Plaza, Creswick Rd., Ballarat (VicRoads 255 M10) at 9.30 am unless otherwise specified.

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